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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/642,852

08/18/2003

Qinbai Fan

GTI-1542

4043

33058

7590

05/24/2006

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EXAMINER

CHU, HELEN OK

ART UNIT

PAPER NUMBER

1745

DATE MAILED: 05/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/642,852

**Applicant(s)**

FAN, QINBAI

**Examiner**

Helen O. Chu

**Art Unit**

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) 15-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 8/18/03
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Election/Restrictions***

1. Applicant's election with traverse of Group 1, claims 1-14, in the Arguments/Remarks filed on April 28<sup>th</sup> 2006 is acknowledged. The traversal is on the grounds that

- a. Claims 30-39 are not drawn to a direct methanol fuel cell, but rather, a method for reducing or eliminating methanol crossover from the anode electrode to the cathode electrode of a direct methanol fuel cell*
- b. Inventions II and I, is not proper since the combination as claimed in Claim 1 does, in fact, require the particulars of the subcombination as claimed in Claim 15 for patentability.*
- c. the Examiner must show that Invention III and I are distinct, which distinctness has not been shown by the Examiner to exist. Accordingly, in the absence of a showing of distinctness by the Examiner, Applicant respectfully urges that the requirement of an election/restriction with respect to Inventions III and I is not proper,*
- d. Invention IV and I are not independent, ...Applicant that the requirement of an election/restriction with respect to Inventions IV and I is no proper.*
- e. in the absence of a showing distinctness by the Examiner, .....an election/restriction with respect to Inventions III and II is no proper.*

*f. the Examiner must show that IV and II are distinct, which distinctness has not been shown by the Examiner, Applicant urges that the requirement of an election/restriction with respect to Inventions IV and II is improper.*

*g. the Examiner must show that IV and III are distinct, which distinctness has not been shown by the Examiner, Applicant urges that the requirement of an election/restriction with respect to Inventions IV and II is improper*

This was not found persuasive because

a. Applicant has admitted that the claims 30-39 are drawn to a direct methanol fuel cell or a method drawn to a direct methanol fuel cell. It is unclear to the Examiner what the Applicant is arguing.

b. the anode, cathode and a proton exchange membrane within the fuel cell can all be considered individually patentably distinct and the electrode as claimed can be used in a solid oxide fuel cell which is very different from a PEM type fuel cell as in claim 1 which proves that combination does not require the particulars of the subcombination and the subcombination can be shown to have different utility. Furthermore, these inventions are in separate classification as noted in the prior Office Action. Please refer to MPEP 808.02.

c. In invention I the product is a fuel cell and not an electrode. Invention III is a process of making an electrode and this electrode can be for a solid oxide fuel cell and not a PEM fuel cell as claimed by the Applicant. It is unclear to the Examiner what points are the Applicant trying to make or argue.

Art Unit: 1745

d. Invention IV and I are not related. Invention IV as the Applicant admits requires methanol or uses methanol, which is not a requirement for invention I or no where in the claims does it ever state the term methanol, chemical structure of methanol or a generic term that would allow anyone skilled in the art to imply that the fuel cell uses methanol or requires methanol in any way, shape or form.

e. Invention III and II are related as process of making and product made but the product does not require mixing as a way of producing the product. The process requires that there is mixing in a plurality of anode catalyst with a binder material. The product clearly does not state that it just requires that the anode catalyst material comprises a binder material which can be purchased together and no requirement of mixing is necessary.

f. Inventions IV and III are unrelated. Invention IV is a drawn to a direct methanol fuel cell or a method drawn to a direct methanol fuel cell as admitted by Applicant. Invention III is a process for making an electrode. These are separate inventions belonging in separate classification. The product of invention IV is a methanol fuel cell and invention III is a process of making an electrode, these are different inventions and has a separate classification as stated in the previous office action. Furthermore, it is unclear to the Examiner what is the argument that the Applicant is presenting.

The requirement is still deemed proper and is therefore made FINAL. Therefore, claims 15-39 are withdrawn from consideration

### **Specification**

2. An examination of this application reveals that it includes terminology, which is so different from that which is generally accepted in the art to which this invention pertains that a proper search of the prior art cannot be made. For example: ligno- or lignin.

Applicant is required to provide a clarification of these matters or correlation with art-accepted terminology so that a proper comparison with the prior art can be made. Applicant should be careful not to introduce any new matter into the disclosure (i.e., matter which is not supported by the disclosure as originally filed).

3. The use of the trademark TEFLON or NAFION has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 4 and 9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The term "ligno-" is defined in Latin for wood and the term lignin is defined as an organic substance that, with cellulose forms the chief part of a woody tissue. It is unclear to the Examiner how does cellulose have an active part in a fuel cell or how does a polyaniline become a cellulose.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 4 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). The term "ligno-" and "lignin" in claims 4 and 9 are used by the claims to mean "grafted", while the accepted meaning is "wood-like." The term is indefinite because the specification does not clearly redefine the term.

***Claim Rejections - 35 USC § 102***

Art Unit: 1745

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Srinivas (US Publication 2004/0110051 A1).

In regard to claims 1-11, the Srinivas reference discloses a fuel cell with an anode catalyst layer comprising a proton conductive material made of sulfonic acid (Paragraph 22). The Srinivas reference discloses a grafted sulfonated polyaniline and a polypyrrole ionomer that is electrically conductive and dispersed throughout a carbon support in fuel cell catalysts (Paragraph 41 and Paragraph 30). It is well known in the art that a PEM fuel cell has an anode, cathode and a proton exchange membrane electrolyte.

In regards to claim 12, the Srinivas reference discloses a proton exchange membrane electrolyte with a thickness of 50-175  $\mu\text{m}$  (Paragraph 17).

In regards to claim 13, the Srinivas reference discloses a catalyst layer that comprises platinum from Johnson Matthey (Paragraph 28) with a combination of ruthenium (Paragraph 146) and has a loading 0.15  $\text{mg}/\text{cm}^2$  (Paragraph 163).

In regards to claim 14, the Srinivas reference discloses the sulfonated group per monomer unit on the polymer ranges from 0.2- 2.9 (Paragraph 136).




***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen O. Chu whose telephone number is (571) 272-5162. The examiner can normally be reached on Monday-Friday 8am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HOC

  
DAH-WEIYUAN  
PRIMARY EXAMINER

Application/Control Number: 10/642,852  
Art Unit: 1745

Page 9